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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/634,103

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Brian R. Johnson

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EXAMINER

THOMAS, BRANDI N

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,103

Applicant(s)

JOHNSON ET AL.

Examiner

Brandi N Thomas

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 33-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 22, 24-28 and 31 is/are rejected.
- 7) ☒ Claim(s) 19-21, 23, 29, 30 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/1/03</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of correlated filter device in the reply filed on 9/28/04 is acknowledged. The traversal is on the ground(s) that Group II includes a correlation filter. This is not found persuasive because Group II, claims 33-44 include a method for selectively filtering light, comprising: identifying a spectral response of interest, wherein said spectral response of interest comprises a number of non-linearly spaced spectral lines; and selecting a desired number of said spectral lines for observation and include a system for measuring atmospheric trace gas, comprising: means for gathering light from within a first field of view; means for measuring an intensity of light within said passbands of the filtering means, all of which are not identified in Group 1, claims 1-32. The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

2. Acknowledgement is made of receipt of Information Disclosure Statement(s) (PTO-1449) filed 8/1/03. An initialed copy is attached to this Office Action.
3. The reference # 47 under "Other Art" group does not identify a publication date as required by CFR 1.98(b)(5).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-9, 11-18, 22, 24-28, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Seeser et al. (US 2002/0191268 A1).

Regarding claim 1, Seeser et al. discloses, in figure 1, a correlated filter device, comprising: a compensation stack (112, 114, 116, 118, 120, 122, 124, 126, 130) including a plurality of layers (134, 136, 138, 140, 142), wherein an optical thickness of at least some of said layers of said compensation stack do not equal an integer multiple of one-quarter of a wavelength of light (section 0052) having a first wavelength corresponding to a first passband of said filter device having a first center wavelength (sections 0039, 0055, and 0080).

Regarding claim 2, Seeser et al. discloses, in figure 1, a correlated filter device, wherein said filter device further comprises a second passband having a second center wavelength and a third passband having a third center wavelength, wherein said first center wavelength is separated from said second center wavelength by a first amount, and wherein said second center wavelength is separated from said third center wavelength by a second amount that is not equal to said first amount (section 0051).

Regarding claim 3, Seeser et al. discloses, in figure 1, a correlated filter device, wherein said optical thickness of a layer comprises a distance equal to a thickness of said layer multiplied by an index of refraction of said layer (section 0042).

Regarding claim 4, Seeser et al. discloses, in figure 1, a correlated filter device, wherein said first wavelength is a wavelength of light in a vacuum (section 0071).

Regarding claim 5, Seeser et al. discloses, in figure 1, a correlated filter device, further comprising: an optical cavity (section 0042).

Regarding claim 6, Seeser et al. discloses, in figure 5C, a correlated filter device, further comprising a reflective stack (204, 206, 208) including a plurality of layers (section 0072), wherein a said compensation stack is associated with a first reflective surface (204) of said optical cavity, and wherein said compensation stack comprises a second reflective surface (216) of said optical cavity (section 0072).

Regarding claim 7, Seeser et al. discloses, in figure 1 and 5C, a correlated filter device, wherein said optical cavity has an optical thickness greater than ten of said first wavelengths (section 0051).

Regarding claim 8, Seeser et al. discloses, in figure 1 and 5C, a correlated filter device, wherein said optical cavity comprises an etalon (section 0015).

Regarding claim 9, Seeser et al. discloses, in figure 1 and 5C, a correlated filter device, wherein said etalon comprises at least one of a Silicon etalon and a Germanium etalon (section 0044).

Regarding claim 11, Seeser et al. discloses, in figure 1 and 5C, a correlated filter device, further comprising: a plurality of optical cavities (section 0042).

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Regarding claim 12, Seeser et al. discloses, in figure 1 and 5C, a correlated filter device, wherein at least some of said optical cavities are formed as layers within said compensation stack (sections 0050-0052).

Regarding claim 13, Seeser et al. discloses, in figure 1 and 5C, a correlated filter device, wherein said plurality of optical cavities comprise layers within a filter having an optical thickness at least as great as one-half of said first center wavelength (section 0052).

Regarding claim 14, Seeser et al. discloses, in figure 1 and 5C, a correlated filter device, wherein said compensation stack comprises high index of refraction layers formed from Germanium and low index of refraction layers formed from Silicon Monoxide (sections 0054 and 0067).

Regarding claim 15, Seeser et al. discloses, in figure 1 and 5C, a correlated filter device, further comprising: a bandpass filter (sections 0006 and 0007).

Regarding claim 16, Seeser et al. discloses, in figure 1, a system for sensing atmospheric trace gases, comprising: at least a first optical cavity (figure 1); a first reflective stack (112) forming a first reflective surface (132) of said optical cavity, said first reflective stack (112) including a plurality of thin film layers (section 0052), wherein at least one of said thin film layers has an optical thickness that is not equal to one quarter of a wavelength of light at a first passband of said system (section 0052) and a second reflective stack (114) forming a second reflective surface (134) of said optical cavity.

Regarding claim 17, Seeser et al. discloses, in figure 1, a system for sensing atmospheric trace gases, wherein said at least a first optical cavity comprises an etalon having an optical

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thickness greater than about ten times said wavelength of light at said first passband of said system (sections 0015 and 0051).

Regarding claim 18, Seeser et al. discloses, in figure 1, a system for sensing atmospheric trace gases, wherein said etalon comprises at least one of a Silicon and a Germanium etalon (section 0044).

Regarding claim 22, Seeser et al. discloses, in figure 1, a system for sensing atmospheric trace gases, wherein said first reflective stack comprises Germanium high index refraction layers and Silicon Monoxide low index of refraction layers (section 0044).

Regarding claim 24, Seeser et al. discloses, in figure 1, a system for sensing atmospheric trace gases, comprising: a correlation filter including: a plurality of thin film layers and a plurality of low index of refraction layers (section 0052), wherein at least one of said thin film layers has an optical thickness that is not equal to one quarter of a wavelength of light at a first passband of said system (section 0052); and a plurality of optical cavities (figure 1).

Regarding claim 25, Seeser et al. discloses, in figure 1, a system for sensing atmospheric trace gases, wherein said plurality of optical cavities comprise thin film layers having an optical thickness of at least one-half a wavelength of said first wavelength (section 0052).

Regarding claim 26, Seeser et al. discloses, in figure 1, a system for sensing atmospheric trace gases, wherein passbands of said system are not regularly spaced (figure 1, the spacers are periodically located within the compensation stack).

Regarding claim 27, Seeser et al. discloses, in figure 5C, a system for sensing atmospheric trace gases, further comprising: a substrate (214), wherein said compensation stack is interconnected to a first surface of said substrate (214) (section 0072).

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Regarding claim 28, Seeser et al. discloses, in figure 5C, a system for sensing atmospheric trace gases, further comprising: a bandpass filter stack, including a plurality of high index of refraction thin film layers and a plurality of low index of refraction thin film layers interconnected to a second surface of said substrate (section 0072).

Regarding claim 31, Seeser et al. discloses, in figure 5C, a system for sensing atmospheric trace gases, wherein said high index of refraction layers comprise Germanium and said low index of refraction layers comprise Silicon Monoxide (section 0044).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seeser et al. (US 2002/0191268 A1) in view of being well known.

Regarding claim 10, Seeser et al. teaches the claimed invention except that it does not show an a Silicon etalon with a thickness of about 386.5 μm . It would be obvious to use a etalon with a thickness of 386.5 μm , since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art (In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980)). Therefore it would have been obvious to someone of ordinary skill in the art at the time the invention was made to use an etalon with a thickness of 386.5 μm for the purpose of the frequency of the carrier signal.

Allowable Subject Matter

8. Claims 19-21, 23, 29, 30, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 19, 20, and 21, wherein the claimed invention comprises a system for sensing atmospheric trace gases, wherein said first reflective stack (112) comprises a compensation stack, wherein passbands of said system are not regularly spaced, and wherein said second reflective stack comprises a bandpass filter and wherein said system includes at least six passbands, and wherein each of said six passbands is centered at an absorption line of an atmospheric gas, and a detector, wherein light having a wavelength within said first passband, a second passband, and a third passband of said system is received at said detector, and wherein said first, second, and third passbands are separated from one another by different amounts, as claimed.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hulse (US 2003/0048985 A1) discloses a filter device that provides for the modification of the group delay of an optical signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BNT

BNT
December 13, 2004


RICKY MACK
PRIMARY EXAMINER